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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/686,323
Filing Date: October 15, 2003
Appellant(s): CRUZ-HERNANDEZ ET AL.

Carl Sanders
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 7/18/2011 appealing from the Office action mailed 3/01/201.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The following are the related appeals, interferences, and judicial proceedings known to the examiner which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal:

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

US Patent: 6,954,899	Anderson	10/2005
US Patent: 7,081,883	Chen	07/2006
US Patent: 6,819,312	Fish	11/2004
US Patent: 6,084,587	Tarr et al	07/2000
US Patent: 6,613,000	Reinkensmeyer et al	09/2003

(9) Grounds of Rejection to be Reviewed on Appeal

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claims 12-22** are rejected under 35 U.S.C. 103(a), as being unpatentable over Anderson (US Patent: 6,954,899) in view of Chen (US Patent: 7,081,883).

As to **claim 16**, Anderson teaches a switch (i.e. the touch sensitive control device 203 that include a computer display) comprising:

a sensor (i.e. the touch pad controlling surface) (see Fig. 1, Col. 4, Lines 1-67); an actuator (i.e. haptic feedback actuator) (see Fig. 3) configured to output a haptic effect (i.e. the actuator creates haptic feedback to form feedback guidance effect for the scrolling bar 331) (see Fig. 3a, Col. 5, Lines 1-25); and

a processor (i.e. the microprocessor of the computer the control the display system which run the pseudo code) in communication with the sensor and the actuator (i.e. both the sensor and actuator are in communication with the computer processor to receive the input and then outputting appropriate feedback) (see Fig. 3a, Col. 5, Lines 15-25), the processor configured to receive a sensor signal from the sensor, and to cause the actuator to generate a haptic effect based at least in part on the sensor signal, wherein the haptic effect comprises a plurality of detents (i.e. the detents are the edges of the display pad and the various area that creates the unique control zones where the user are given unique feed backs) (see Fig. 3a, 3b, Col. 5, Line 1 - Col. 6, Line 37) defining a first primary channel (i.e. the up directional channel of control along the Y axis) defined along a second axis (i.e. the Y-axis on display area), a first secondary channel (i.e. the diagonal control channel at 45 degree of Y-axis up direction) proximate to the first primary channel, and a second primary channel (i.e. the right directional control channel in the X-axis) proximate to the second primary channel (i.e. the diagonal control at channel 45 degree of X-axis right direction), the detents configured to substantially constrain movement to one of the first primary channel, the

second primary channel, the first secondary channel, or the second secondary channel (i.e. computer is able to output unique detect along each of the axis of the display to coordinate cursor function which user experiences that include scrolling both horizontally and vertically, zooming in and out to interact with user's motions during the feedback) (see Fig. 3a, 3b, Col. 5, Line 1 - Col. 6, Line 37).

However Anderson is silent about having each channel is a substantially one-dimensional channel, the first primary channel intersects the second primary channel, the first secondary channel intersects one of the first or second primary channel and the second secondary channel intersects one of the first or second primary channels or the first secondary channel. Chen teaches each channel is a substantially one-dimensional channel, the first primary channel intersects the second primary channel, the first secondary channel intersects one of the first or second primary channel and the second secondary channel intersects one of the first or second primary channels or the first secondary channel (i.e. in Chen's dual touch control interface the channels are divided into two primary set and two secondary set of X and Y channel where the user interact with each of the finger where the primary channel and secondary channel intersect in the actual plan of control of the computer) (see Chen Fig. 6A, 6B, Col. 6, Lines 13-60).

Therefore it would have been obvious for one of ordinary skill in the art at the time the invention was made to have used Chen's dual finger control system in place of the touch screen interface for the overall haptic feedback input system of Anderson in order to achieve a input system allow six degree of freedom input (see Chen Col. 1, Lines 25-40).

As to **claim 12**, Anderson teaches the switch of claim 16, wherein the switch (i.e.. the touch control surface) comprises a circular shape (i.e. the control pad has a circular control area 104 are the area defining the range of motion) (see Fig. 1, Col. 3, Lines 18-25).

As to **claim 13**, Anderson teaches the switch of claim 16, wherein the switch comprises an eight-way switch (i.e. the control pad interface allow the user to move in any direction to for meaningful interaction with object on the display this means that the control is at least eight way with the x y directions and their corresponding diagonal control directions) (see Fig. 3b, 3c, Col. 5, Lines 1-67).

As to **claim 14**, Anderson teaches the switch of claim 16, further comprising providing a biasing element (i.e. element providing the user transitional feedback which inverse feedback control) proximate to a center of the switch (i.e. the biasing element is the haptic responses according to software control based on transitional capability as shown on the display in Fig. 3c where the user receives additional feedbacks moving to 341) (see Fig. 3c, 3d, Col. 6, Lines 8-67).

As **to claim 15**, Anderson teaches the switch of claim 16, further comprising providing a detent (56) proximate to a radius of the switch (i.e. since the display control interface is able to create control area at will on the display surface the as seen in figure 3d, the detect created by the haptic area 344 is proximate to a radius of the control screen as a whole) (see Fig. 3d, Col. 6, Lines 37-67).

As to **claim 17**, Anderson teaches the switch of claim 16, further comprising:
a third primary channel defined substantially co-axial with the first primary channel (i.e.

the channel formed by a secondary surface from outside of the display area, since the display panel can have separate behavior in terms of haptic control with respect of the area that is outside of this zone, the zone not making the display can for separate channel of feedback for the user) disposed about a first axis (Y axis); (see Fig. 3c, Col. 6, Lines 1-40);

a fourth primary channel defined substantially co-axial with the second primary channel (i.e. the channel formed by the X-axis motion in area outside of the display area) (see Fig. 3c);

a third secondary channel defined proximate to the third primary channel (i.e. the diagonal control at channel 45 degree of X-axis down direction in the area not displaying the image on screen) (see Fig. 3c);

and a fourth secondary channel defined proximate to the fourth primary channel (i.e. the diagonal control at channel 45 degree of X-axis left direction outside of the image display area) (see Fig. 3c).

As to **claim 18**, Anderson teaches the switch of claim 17, wherein the first axis is substantially orthogonal to the second axis (i.e. by definition x and y axis in the Cartesian coordinate system are orthogonal with each other) (see Fig 3a, 3c)

As to **claim 19**, Anderson teaches the switch of claim 16, wherein the first secondary channel is oblique to the first primary channel (i.e. the first secondary channel can be formed by the movement of the control pad 18 diagonally up and to the right which is oblique to the first primary channel) (see Fig. 3a-3d, Col. 5, Lines 1-66);

and the second secondary channel is oblique to the second primary channel (i.e.

the second secondary channel can be formed by the movement of the control pad 18 diagonally down and to the left which is oblique to the second primary channel) (see Fig. 3a-3d, Col. 5, Lines 1-66).

As to **claim 20**, Anderson teaches the switch of claim 16, wherein the first secondary channel is substantially orthogonal to the first primary channel (i.e. the first secondary channel can be formed by the movement of cursor on the surface area as seen in the haptic box area 341) (see Fig. 3c);

and the second secondary channel is substantially orthogonal to the second primary channel (i.e. the second secondary channel can be formed by the movement of the control pad 18 vertically up which is orthogonal to the second primary channel) (see Fig. 3c).

As to **claim 21**, Anderson teaches the switch of claim 17, wherein the third secondary channel is oblique to the third primary channel (i.e. the first secondary channel can be formed by the movement of cursor on the surface area as seen in the haptic box area 341) (see Fig. 3c); and the fourth secondary channel is oblique to the fourth primary channel (see Fig. 3c).

As to **claim 22**, Anderson teaches the switch of claim 17, wherein the third secondary channel is substantially orthogonal to the third primary channel (i.e. the first secondary channel can be formed by the movement of cursor on the surface area as seen in the haptic box area 341) (see Fig. 3c);

and the fourth secondary channel is substantially orthogonal to the fourth primary channel (see Fig. 3c);

3. **Claims 1-11 and 23-25** are rejected under 35 U.S.C. 103(a) as being unpatentable over Fish (US Patent: 6,819,312) in view of Tarr et al. (US Patent: 6,084,587), Reinkensmeyer et al. (US Patent: 5,830,168) and Anderson (US Patent: 6,954,899).

As to **claim 1**, Fish teaches a method comprising: defining a graphic user interface having a plurality of input elements (604) arranged in a matrix configuration (i.e. the 3 x 3 array of haptels 604 which allow the user to input into the graphic interface of the computing system) (see Fig. 6A, Col. 8, Lines 63- 67);

defining a first cell, the first cell comprising representing a first haptic effect (i.e. since more than one of the haptel can be grouped to together to output a haptic feedback) (see Fig. 10, Col. 17, Lines 10-40);

assigning the first cell to a first graphic input element in the matrix configuration (i.e. the step 1012 seek out each haptel to assign them into the cell) (see Fig. 10, Col. 17, Lines 10-40);

assigning the first cell to a second graphic input element in the matrix configuration (i.e. the step 1012 seek out another haptel to assign it into the cell that

may include all of the haptels) (see Fig. 10, Col. 17, Lines 10-40);

receiving a sensor signal from a sensor, the sensor configured to detect a movement of a user manipulatable object of an interface device and the sensor signal associated with the movement (i.e. the control processor 904 examiner the sensor data where both the of the haptel area is contacted by the step 1008, and the computer having display cursor which are objects that in interacted upon by the touch control system) (see Fig. 10, Col. 16, Lines 66-67); and

determining a position of a graphic object based at least in part on the sensor signal; and outputting the first haptic effect based at least in part on the first parameter and the interactions (i.e. the haptic feedback effect is outputted back on the user interaction and the processor assigned haptic feedback type) (see Col. 17, Lines 46-60).

However Fish does not explicitly teach a first parameter and manipulatable object of an interface device and the haptic effect configured to resist or assist the movement of the user manipulatable object. Tarr teaches a first parameter (i.e. the parameter can be the coefficient of friction that affect the haptic feedback) (see Fig. 7, Col. 9, Lines 55-61).

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to have used the haptic interaction control of Tarr in the overall haptic control device of Fish in order to add the ability to define a haptic VR space independently of a graphical space to provide greater degree of flexibility. (See Tarr Col. 1, Lines 59-63)

Reinkensmeyer teaches feedback effect guide a movement of a user manipulatable object of an interface device (i.e. as the user manipulatable joystick in an object which can function together with the touch control system interface to create a user feedback system) (see Reinkensmeyer, Fig. 2-4, Col. 13, Lines 1-31), the haptic effect configured to resist or assist the movement of the user manipulatable object (i.e. the user is allow to rehab using the joystick interface where assistance and resistance is set to allow for progressive interaction and rehabilitation) (see Reinkensmeyer, Fig. 2, Col. 3, Lines 10-35).

Therefore it would have been obvious for one of ordinary skill in the art at the time the invention was made to have used the joystick based interface control design of Reinkensmeyer in addition to the touch pad haptic feedback control system of Fish in order to create a system for user rehabilitation) (see Reinkensmeyer, Col. 3, Lines 1-35).

However Fish does not explicitly teach determining an interaction between the position of the graphical object and a least one of the plurality of graphical input elements, Anderson teaches determining an interaction between the position of the graphical object and at least one of the plurality of graphical input elements (i.e. the computer is able to output unique detection of the users movement along each of the axis of the display to coordinate cursor function, which user experience in the scrolling actions which functions both in horizontally and vertically directions and also allow the display to zoom in and out to interact with user's motions during the feedback) (see Anderson, Fig. 3a, 3b, Col. 5, Line 1 - Col. 6, Line 37).

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to have used to scrolling control capability of Anderson in the overall input display system of Fish in order to allow the user intuitive control of the display input system (see Anderson Col. 2, Lines 20-25).

As to **claim 23**, see discussion of claim 1 above, claim 23 is analyzed as the same as claim 1, where the only variation is the substitution of a computer program stored in a computer readable medium, and is rejected on the same ground.

As to **claim 2**, Fish teaches the method of claim 1, further comprising communicating the first cell from a first processor (i.e. computer CPU) to a second processor (904) (i.e. since the haptic control processor 904 must communicate with the received the processes to be outputted) (see Fig. 16, Col. 21 Lines 40-55, Col. 22, Lines 1-13) (see Fish Fig. 6, 7, Col. 9, Line 48-Col. 10, Line 23).

As to **claim 3**, Fish teaches the method of claim 2, further comprising: defining a second cell (i.e. another area on the haptic grid that represent a virtual object of Tarr), the second cell comprising a second parameter (i.e. another one of the parameters of the sub-construct, for example texture) representing a second haptic effect (i.e. the parameter that factor into how the haptic interactions are applied to the user, when the user interacts with the object in the virtual space, which represents another type of haptic effect) (see Tarr, Fig. 2, Col. 5, Lines 55-65); communicating the second cell from the first processor (i.e. computer CPU) to the second processor (i.e. the control processor of the haptic device 940); and assigning the second cell to a third input

element in the matrix configuration (i.e. since the second cell object can be assigned to another haptel 604 in the grid) (see Fish Fig. 6, 7, Col. 9, Line 48-Col. *10,* Line 23).

As to **claim 4**, Fish teaches the method of claim 3, wherein the first and second cells are defined by the first processor (i.e. the processor of the computer that create the virtual object and processes it and represent it with a haptic feedback) and the first, second, and third input elements are assigned by the second processor (i.e. the control processor 904 assign the haptels to deliver the haptic feedback for each of the objects) (see Fish Fig. 6, 7, Col. 9, Line 48-Col. 10, Line 23).

As to **claim 5**, Fish teaches the method of claim 3, wherein the third location is disposed between the first and second input element (i.e. since the haptel grid is show with a 3 x 3 matrix the third location is the middle haptel on the grid) (see Fig. 6A, Col. 8, Lines 63-67).

As to **claim 6**, Fish teaches the method of claim 1, wherein the matrix configuration comprises a square shape (i.e. since the haptel grid is show with a 3 x 3 matrix in a square shape) (see Fig. 6A, Col. 8, Lines 63-67).

As to **claim** 7, Tarr teaches the method of claim 1, wherein the matrix configuration comprises a circular shape (i.e. the matrix, a higher level object can be circles which can be implemented as a plurality of haptels arrange in a circular shapes) (see Tarr Col. 6, Lines 6-7).

As to **claim 8**, Tarr teaches the method of claim 1, wherein the first cell comprises a first detent and the second cell comprises a second detent (since during a collision with the cells (sub-constructs) the user are prevented from penetrate the

object, the cell comprises detent that allow limitation of user movement in the virtual space) (see Tarr Cot 7, Lines 20-34)

As to **claim 9**, Fish teaches the method of claim 3, further comprising providing an actuator (i.e. any one of the moving assembly 100 affect all of the other haptels and are controlled together) in communication with the first, second, and third input element (i.e. since the haptic feedback grid is coordinate by the computer CPU to express complex haptic interactions each of the actuator 100 are communication with the surface sensor relevant to each of the three haptels and controlled together) (see Fish Fig. 1, 6A, Col. 9, Lines 1-45, Col. 10, Lines 7-60).

As to **claim 10**, Fish teaches the method of claim 2, wherein the second processor is disposed remotely from the first processor (i.e. the processor is capable of communicating RS-232 cable means that they are remotely connected to operate) (See Fish Fig. 7, Col. 10, Lines 7-25).

As to **claim 11**, Tarr teaches the method of claim 1, wherein the first cell comprises an arc and first and second edges (i.e. since the virtual object can be a sum of various other sub-construct object such as a line or shapes) (see Fig. 1-3, Col. 5, Lines 40-55, Col. 6, Lines 1-23);

and wherein the haptic effect comprises a plurality of force vectors within the first cell, the force vectors directed outward from a centerline of the first cell toward the first and second edges (i.e. the various parameter that is able to be assigned to the objects such as viscosity and acceleration are force vectors, since during the user interactions these elements direct the forces that is applied the user; also since the force must be

applied from a point in the virtual space the object in virtual space when interacting with the user will direct force in a radial manner from a give point) (see Col. 5, Lines 55-65)

As to **claim 24**, Fish teaches the computer-readable medium of claim 23, further comprising program code for communicating the first cell from a first processor to a second processor (i.e. the processor is capable of communicating RS-232 cable means that they are remotely connected to operate) (See Fish Fig. 7, Col. 10, Lines 7-25).

As to **claim 25**, Fish teaches The computer-readable medium of claim 24, further comprising: program code for defining a second cell, the second cell comprising a second parameter representing a second haptic effect; program code for communicating the second cell from the first processor to the second processor; and program code for assigning the second cell to a third input element in the matrix configuration (i.e. since the haptel grid functions together to form a virtual grid of feedback the various underlying effect is created by the computer generated cell of haptel feedback zone which requires the both processor be driven together for multiple feedback) (see Fish, Col. 17, Lines 1-25).

(10) Response to Argument

On pages 7-9 in the instant Brief, the Appellant argues on the rejections of claims 1 and 23 and dependent claims 2-11 and 24-25:

(A) Appellant specifically argues: "Fish does not disclose "defining a graphical user interface having a plurality of graphical input elements arranged in a matrix configuration. … Examiner has cited to item 604 shown, for example, in Figure 6A of

Fish) However, item 604 in Fish is disclosed to be a "haptel grid." A haptel grid in Fish is a physical device having a number of individual haptels, each of which is "a haptic feedback device with linear motion having a touchable surface substantially perpendicular to the direction of motion" and includes "a moving assembly and a stationary assembly." However, as is discussed in the specification and is known to one of skill in the art, a graphical user interface is not a physical device, but rather a graphical interface displayed on a screen. Thus, neither the haptel grid nor the individual haptels defines a graphical user interface, nor is either a graphical input element. Further, the arrangement of haptels in a haptel grid is not a plurality of graphical input elements arranged in a matrix configuration. Rather, the haptel grid is a physical assembly made up of a number of individual physical components, not graphical objects displayed on a screen as a part of a graphical user interface. Thus, Fish does not disclose or suggest "defining a graphical user interface having a plurality of graphical input elements arranged in a matrix configuration."

IN response to arguments in (A), Examiner respectfully disagrees with the Appellant's argument because Fish teaches an enhancement device for a personal computer graphical interface system having the functionality of bi-directional feedback from the computer to the user that consists of both a hardware and software system to form an overall graphical user interface solution, as seen in Fish figures 9 and 10 and by the specification "Thus, the device is a pointing device for graphical user interfaces which provides dynamic haptic feedback under application control for multiple simultaneous interactions" (abstract) and "The current state of coordinated touches is

periodically sent to computer 916 over serial link 914 (step 1014). Computer 916 is preferably updated with a frequency on the order of hundreds of times per second. Computer 916 is preferably sent only the collective measurements of XY, position, velocity, acceleration and applied force. Serial link 914 is preferably checked for incoming data from computer 916 containing instructions on the haptic effects to use for each coordinated touch (step 1016). Typically, haptic effect commands are sent after a new coordinated touch starts, and only periodically once the touch is in progress. The haptic effect might be changed subsequently depending on the state of the software executed by computer 916. For example, after a user has started to press a virtual button, computer 916 can disable the button. The new haptic effect is preferably implemented as soon as it is received. Haptic effect command can be designated to simply assign one of many built-in haptic effects to the coordinated touch or to define a custom haptic effect (e.g., by mixing together built-in effects, transmitting a force response curve, or downloading executable machine codes which implement an effect)" (Col. 17, Lines 46-67). Therefore, the computer processing functions shown in figure 10 of the disclose of Fish requires a graphical user interface with plurality of controllable objects such as virtual buttons and displayed objects manipulable by the user in an matrix format that the computer uses to interact with the user visually which correspond to the touch input system as shown in Fish figure 6B.

(B) Appellant argues, "Further, Fish does not disclose "defining a first cell, the first cell comprising a first parameter representing a first haptic effect." The Examiner has alleged that a group of haptels to output a haptic effect discloses this limitation.

However, as recited in the present specification, a cell is "a memory construct in which parameters represent or define haptic effects." A grouping of haptels is not a memory construct in which parameters represent or define haptic effects. While multiple haptels may output haptic effects, they are physical devices, whether actuated individually or in a group and thus are not memory constructs. Further, they are not, and do not have, parameters that represent or define haptic effects. Again, they are simply physical devices that are capable of outputting haptic effects. Thus, Fish does not disclose or suggest "defining a first cell, the first cell comprising a first parameter representing a first haptic effect." Tarr, Reinkensmeyer, and Anderson do not cure Fish's noted deficiencies. "

IN response to arguments in (B), Examiner respectfully disagrees with the Appellant's argument because Fish teaches a device for a personal computer graphical interface system where multiple user touch events are tracked by the computer and the computer displays the virtual events to the user to allow by the bi-directional communications as shown in Fish figure 10. In order for the software on the computer 916 of electronic system of Fish figure 9 to implement a feedback for the overall graphical user interface for the user, an electronic memory is required for "mixing together built-in effects, transmitting a force response curve, over downloading executable machine code which implement an effect" (see Fish Col. 17, Lines 65-67); in this way the plurality of haptels when outputting haptic effects requires computer control via display control to store information to enable device related virtual interactions of display change based on user input feedback loops that functions as both simple button

response that corrections to actual display screen area and dynamic input actions such as touch input of user movement) (see Fish Col. 17, Line 46-Col. 18, Line 27).

(C) Appellant argues: "Finally, the combined references do not disclose or suggest "the haptic effect configured to resist or assist the movement of the user manipulatable object." The Examiner has acknowledged that Fish in view of Tarr does not disclose such an element, and thus has introduced Reinkensmeyer, which discloses a joystick, to disclose such an element. However, the Examiner has not provided any basis on which the Fish haptels and the Reinkensmeyer joystick could be combined. The Examiner's argument is simply that a joystick in combination with a touch pad haptic device would create a system for user rehabilitation. It is not clear how the haptels of Fish could be combined with a joystick, or if such a combination would be possible at all. Further, the introduction of the joystick for this element is internally inconsistent with the Examiner's position that the Fish haptels are the user manipulable object, whose movement is sensed. Claim 1 recites that "the haptic effect configured to resist or assist the movement of the user manipulatable object," i.e. the haptels according to the Examiner's rejections,34 not some other device. Thus, claim 1 is patentable over Fish in view of Tarr and further in view of Reinkensmeyer and Anderson"."

IN response to arguments in (C), Examiner respectfully disagrees with the Appellant's argument because Fish teaches a control enhancement device where multiple user touch events are tracked by the computer and the computer displays the virtual events. The prior art Reinkensmeyer is used in addition to Fish, to show one of

ordinary skill in the art that the multiple touch haptic effect can "be designate to simply assign one of many built-in haptic effects to the coordinated touch or to define a custom haptic effect" (see Fish Col. 17, Lines 60-63) to include the application of helping user to physically rehabilitate using movement exercise as taught by Reinkensmeyer (i.e. the feedback mechanism of Reinkensmeyer solves the same computer based user haptic feedback problem which allow the user to experience feedback based on graphic user interface software system as shown in figure 4) (see Reinkensmeyer, Fig. 2-4, Col. 13, Lines 1-31).

(D) Appellant further argues: "Claim 23, which recites similar elements as claim 1 and was rejected on the same bases as claim 1, is likewise patentable over Fish in view of Tarr and further in view of Reinkensmeyer and Anderson for at least the same reasons. Claims 2-11, 24, and 25 each depend from and further limit one of claims 1 or 23, each of claims 2-11, 24, and 25 is patentable over Fish in view of Tarr and further in view of Reinkensmeyer and Anderson for at least the same reasons."

IN response to arguments in (D), see above sections (A), (B), and (C), the Examiner respectfully disagrees based on the same reasons as sections (A), (B), and (C).

On pages 9-11 in the Instant Brief, the Appellant argues with respect to rejections of claims 16 and dependent claims 12-15 and 17-22:

(A) Appellant specifically argues: "Anderson does not disclose such functionality. While Anderson discloses areas surrounded by haptic boundaries, it does not disclose

substantially one dimensional areas surrounded by haptic boundaries. Rather, it discloses two-dimensional and three-dimensional regions surrounded by boundaries. While this may appear to be a distinction without a difference, claim 16 also recites various intersections between channels and that movement of an interface device is constrained to one of the channels. Anderson does not disclose intersections between multiple two-dimensional and three-dimensional areas. Further, Anderson does not disclose how such intersections might be realized. Instead, Anderson is devoid of disclosure regarding the claimed intersections between channels and constraining movement of a manipulandum to only one of such channels. Thus, Anderson does not disclose "the plurality of detents [is] configured to substantially constrain movement of an interface device to one of the first primary channel, the second primary channel, the first secondary channel, or the second secondary channel, wherein: each channel is a substantially one-dimensional channel, the first primary channel intersects the second primary channel, the first secondary channel intersects one of the first or second primary channel, and the second secondary channel intersects one of the first or second primary channels or the first secondary channel" as recited in claim 16. Chen does not cure this deficiency. Chen discloses a "low-profile multi-channel user interface device. " Chen discloses that its "channels" are simply the vector components of user inputs having magnitudes in the X, Y, and Z axes. These are not the claimed "channels," they are merely directional inputs. Further, the Examiner argues that Chen discloses the claimed arrangement of channels because "in Chen's dual touch control interface the channels are divided into two primary set and two secondary set of X and

Y channel where the user interact with each of the finger where the primary channel and secondary channel intersect in the actual plan of control of the computer." The Examiner's argument is not entirely clear; however, the Examiner's position appears to be that because two fingers may be used to control the Chen device, there are consequently two channels. If the two fingers depressions in the Chen are argued to correspond to the claimed channels, there are myriad difficulties with the Examiner's position. Such a position is contrary to the plain language of claim 16, which recites that the channels are defined by detents and that movement of the interface device is constrained to only one of the claimed channels. Additionally, Chen discloses that both depressions may be used simultaneously, which is contrary to the recitations in claim 16. Further, the depressions themselves are not substantially one dimensional and are not defined by a plurality of detents. In addition, the Chen device is disclosed as moveable in multiple degrees of freedom (translational and rotational) simultaneously with no restriction to only a single direction or within a single channel of a plurality of channels as recited in claim 16. Thus, like Anderson, Chen does not disclose "the plurality of detents [is] configured to substantially constrain movement of an interface device to one of the first primary channel, the second primary channel, the first secondary channel, or the second secondary channel, wherein: each channel is a substantially one-dimensional channel, the first primary channel intersects the second primary channel, the first secondary channel intersects one of the first or second primary channel, and the second secondary channel intersects one of the first or second primary channels or the first secondary channel" as recited in claim 16. Thus,

Anderson in view of Chen does not disclose or suggest each and every element of claim 16. Therefore, claim 16 is patentable over Anderson in view of Chen. Applicant respectfully requests the Examiner withdraw the rejection of claim 16."

IN response to arguments in (A), Examiner respectfully disagrees with the Appellant's argument because the display based interface system of Anderson teaches a scalable system of localized control areas which borders each other on the computer display, which are themselves dynamically allocated according to the various display function of the graphic user interface of Anderson electronic display and input device, as demonstrated in figures 3a, 3b, 3c and 3d the boxes 331, 335, 341, 344 and 343, where a two dimensional space and three dimensional space are shown on the display; figure 3a specifically displays a vertical touch screen scroll bar 331, which is an essentially one dimensional area which can be overlaps with other display areas as shown in figure 3a) (i.e. the detents are the edges of the display pad and the various area that creates the unique control zones where the user are given unique feed backs) (see Fig. 3a, 3b, Col. 5, Line 1 - Col. 6, Line 37).

Anderson therefore, creates a virtual area on the display which allows several area to be assigned to guide the user by provide haptic feedback where the channels are the one of X, Y, and Z direction as shown in the figure 3b cubic box representation elements 336 and 335. Chen on the other hand, teaches that the control system can have a multiple fingers control system as shown in figures 2 and 10 where two control area can be simultaneous implemented for user's touch interaction in the control areas (i.e. in Chen's dual touch control interface the channels are divided into two primary sets

and two secondary set of X and Y channel where the user interact with each of the finger where the primary channel and secondary channel intersect in the actual plan of control of the computer) (see Chen Fig. 6A, 6B, Col. 6, Lines 13-60). In this way the combination of Anderson's movable controlling surface for haptic feedback guidance can be combined with the dual control surface design of Chen as one of ordinary skill in the art could have appreciate the increase control capacity of a six-degree of freedom control is desirable for the user to have in a three dimensional input system as the real world requires three control dimensions to truly render in full.

(B) Appellant further argues: "Because claims 12-15 and 17-22 depend from and further limit claim 16, each of claims 12-15 and 17-22 are patentable over Anderson in view of Chen for at least the same reasons. Applicant respectfully requests the Examiner withdraw the rejection of claims 12-15 and 17-22. "

IN response to arguments in (B), see above sections (A), the Examiner respectfully disagrees based on the same reasons as sections (A).

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner’s answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Calvin Ma/
August 12, 2011

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